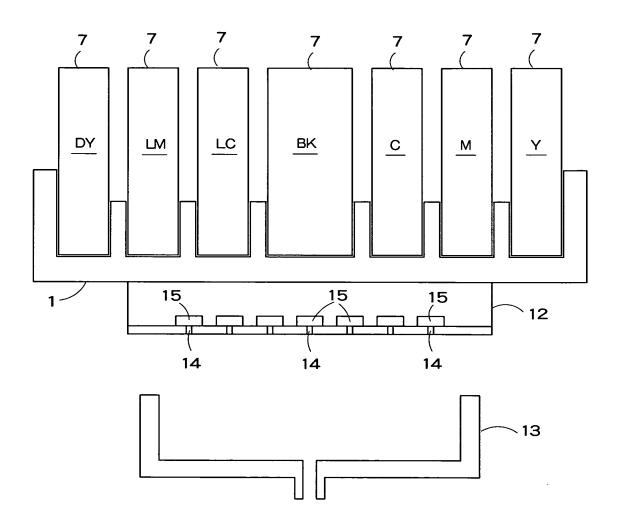
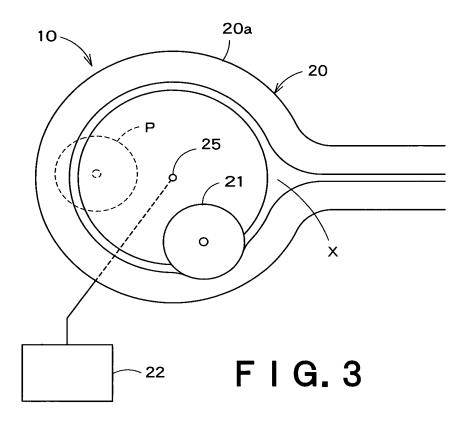
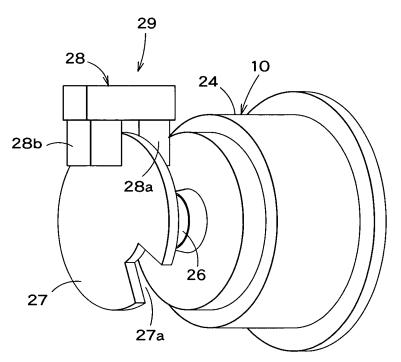


F I G. 1

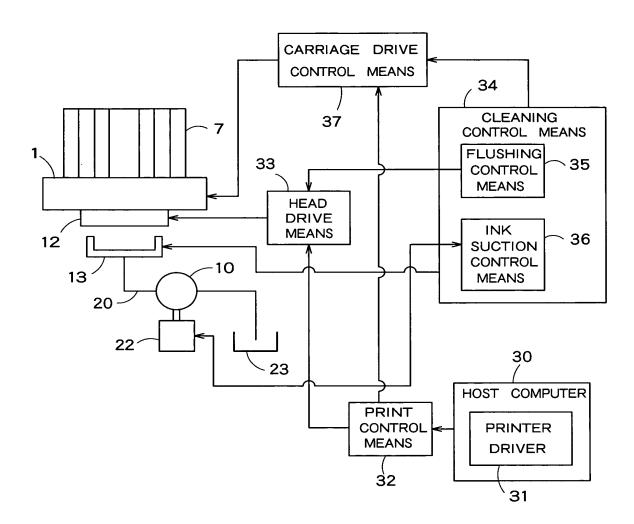


F I G. 2

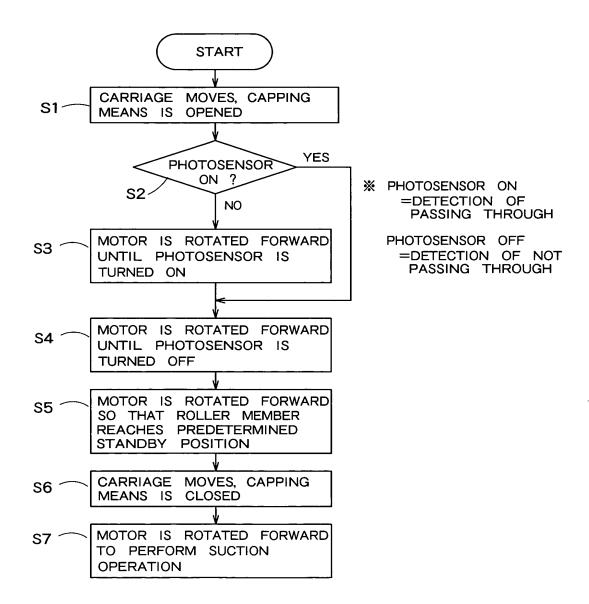




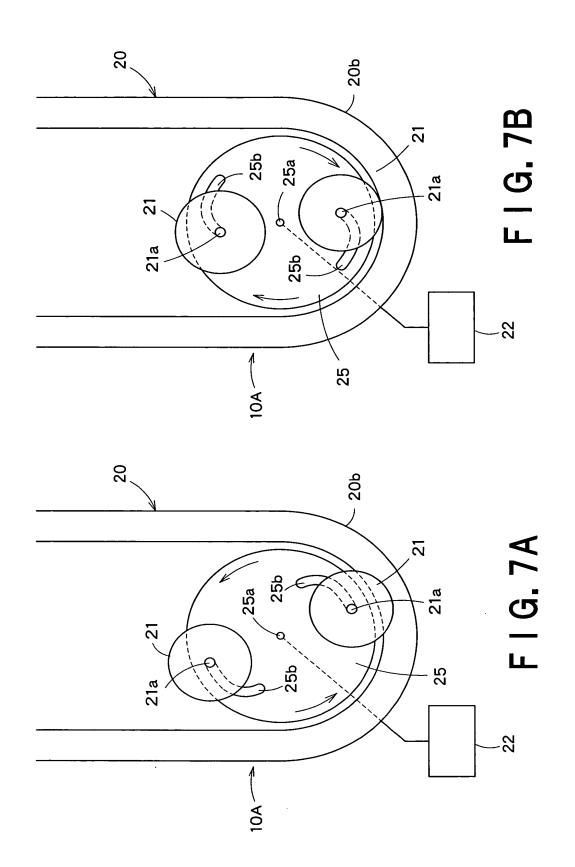
F I G. 4

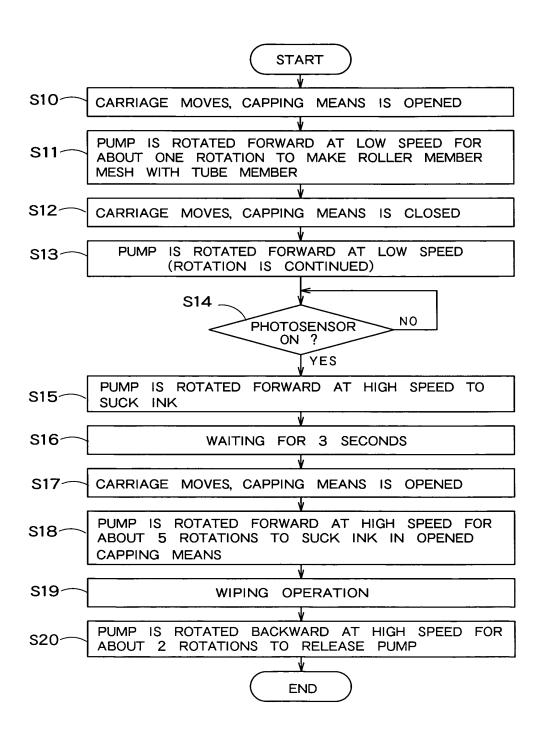


F I G. 5



F I G. 6

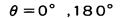


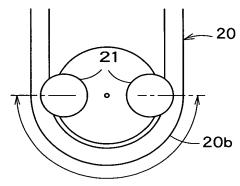


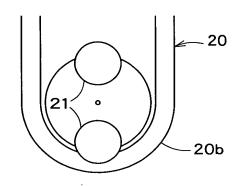
F I G. 8

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 $\theta = 90^{\circ}$, 270°



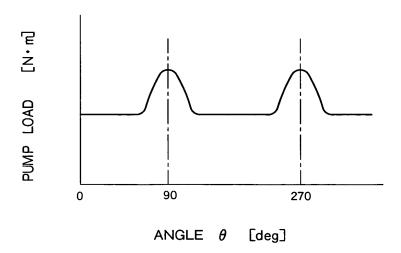




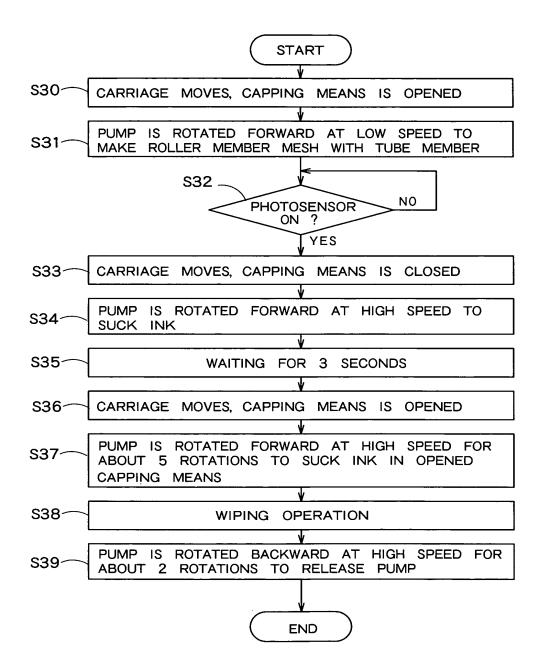
SECTION OF TUBE MEMBER PRESSED AND DEFORMED BY ROLLER MEMBER IS 180°

FIG.9A

F I G. 9B

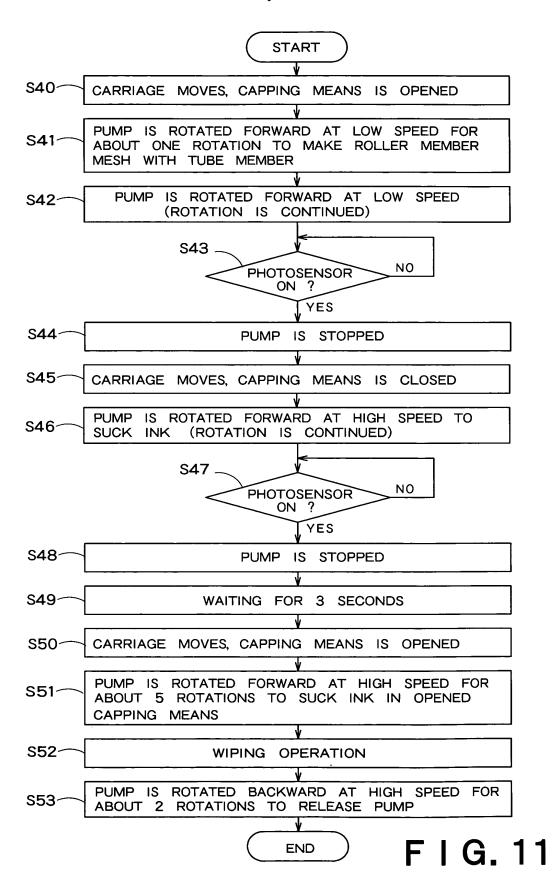


F I G. 9C

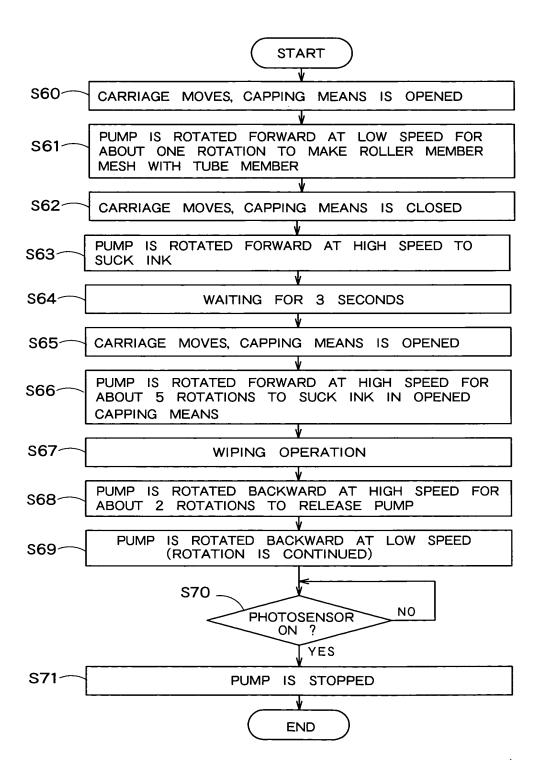


F I G. 10

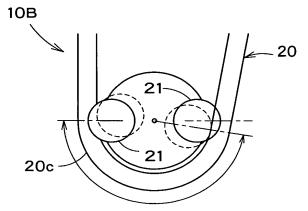
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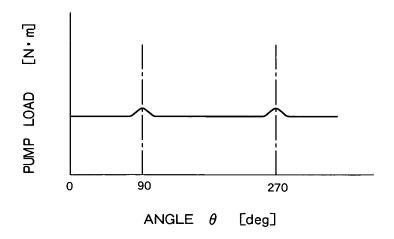


F I G. 12

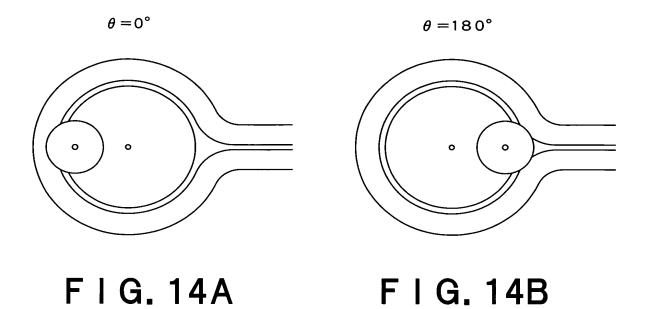


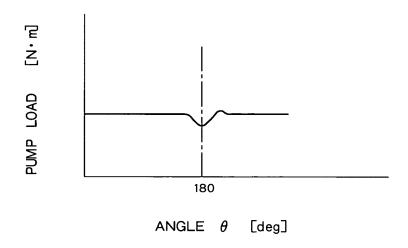
SECTION OF TUBE MEMBER PRESSED AND DEFORMED BY ROLLER MEMBER IS 170°

F I G. 13A

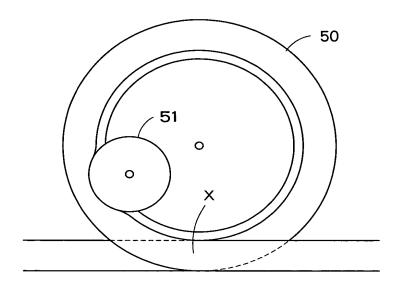


F I G. 13B

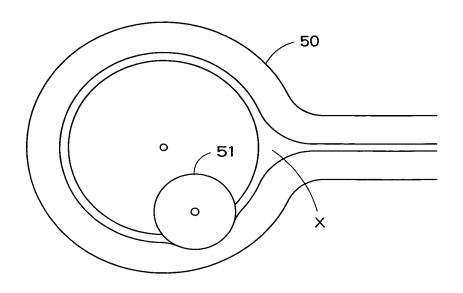




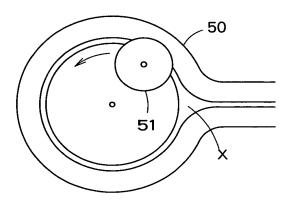
F I G. 14C



F I G. 15



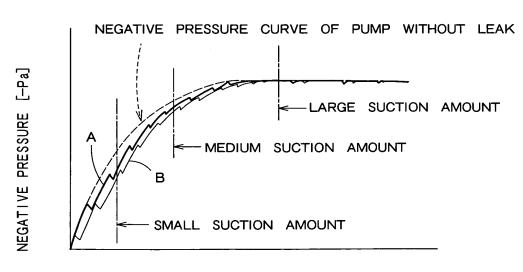
F I G. 16



50 51 °

F I G. 17A

F I G. 17B



PUMP ROTATION TIME [s]

F I G. 17C